

***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE***

Applicant: Nicholas L. Abbott and  
Seung-Ryeol KIM.

Title: BIOCHEMICAL BLOCKING  
LAYER FOR LIQUID CRYSTAL  
ASSAY

Prior Appl. No.: 09/784,679

Appl. No. Unknown

Filing Date: Submitted Herewith

Examiner: Unassigned

Art Unit: Unassigned

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §1.56**

Mail Stop PATENT APPLICATION  
Commissioner for Patents  
PO Box 1450  
Alexandria, Virginia 22313-1450

Sir:

Applicants submit herewith on Form PTO-1449 a listing of the documents cited by or submitted to the U.S. PTO in parent application Serial No. 09/784,679, filed February 15, 2001. As provided in 37 CFR §1.98(d), copies of the documents are not being provided since they were previously submitted to the United States Patent & Trademark Office in the above-identified parent application.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(b), within three (3) months of the filing date of the application.

**RELEVANCE OF EACH DOCUMENT**

All of the documents are of record in parent application USSN 09/784,679. Each of the documents are either in the English language or are in a foreign language and an English language abstract was provided in the parent application.

Applicants respectfully request that any listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO-1449 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2350. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2350.

Respectfully submitted,

Date July 23, 2003

By B.P.F.

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PATENT TRADEMARK OFFICE

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Form PTO-1449 (MODIFIED)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 032026-0736	SERIAL NO. Unassigned
<b>INFORMATION DISCLOSURE CITATION</b> <i>(Use several sheets if necessary)</i>		APPLICANT Nicholas L. ABBOTT et al.	Serial No. of Parent Application: 09/784,679
		FILING DATE 07/23/2003	GROUP ART UNIT unassigned

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
		5,091,318	25 Feb. 1992	Anawis et al.			
		5,712,103	27 Jan. 1998	Leavitt et al.			
		6,171,802	09 Jan. 2001	Woolverton et al.			
		6,284,197	04 Sep. 2001	Abbott et al.			

**FOREIGN PATENT DOCUMENTS**

REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
						YES	NO
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	JP 02311822 A2	27 Dec. 1990	Japan				
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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	Starkey, C.A. et al. "Evaluation of the Recombigen HIV-1 Latex Agglutination Test", <i>J. Clin. Microbiol.</i> , Vol. 28, No. 4, pp. 819-822, April 1990; published by the American Society for Microbiology (Washington D.C.).
	Häussling, L. et al. "Biotin-Functionalized Self-Assembled Monolayers on Gold: Surface Plasmon Optical Studies of Specific Recognition Reactions", <i>Langmuir</i> , Vol. 7, No. 9, pp. 1837-1840, September 1991; published by the American Chemical Society (Washington, D.C.).

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		Jérôme, B., "Surface Effects and Anchoring in Liquid Crystals," <i>Rep. Prog. Phys.</i> Vol. 54, pp. 391-452, 1991; published by IOP publishing Ltd. (United Kingdom).
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		Charych, D.H. et al., "Direct Colorimetric Detection of a Receptor-Ligand Interaction by a Polymerized Bilayer Assembly", <i>Science</i> , Vol. 261, pp. 585-588, 30 July 1993; published by the American Association for the Advancement of Science (Washington D.C.).
		Cocchi, J.M. et al., "Comparison Between Direct Binding, Competition and Agglutination Assays in the Characterization of Polyclonal Anti-idiotypes Against Anti-HBs Human Monoclonal Antibodies," <i>Immunological Meth.</i> , Vol. 160, pp. 1-9, 1993; Elsevier Science Publishers.
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		Kuby, J., <i>Immunology</i> , Second Edition (1994), pp. 147-150; W.H. Freeman and Company (New York, NY).
		Cornell, B.A. et al., "A Biosensor that uses Ion-Channel Switches," <i>Nature</i> , Vol. 387, pp. 580-583, 5 June 1997; published by Nature Publishing (New York, NY).
		Lin, V. et al., "A Porous Silicon-Based Optical Interferometric Biosensor," <i>Science</i> , Vol. 278, pp. 840-843, 31 October 1997; published by the American Association for the Advancement of Science (Washington, D.C.).
		Pan, J. J. et al., "Molecular Recognition and Colorimetric Detection of Cholera Toxin by Poly(diacetylene) Liposomes Incorporating Gm1 Ganglioside," <i>Langmuir</i> , Vol. 13, No. 6, pp. 1365-1367, 1997; published by the American Chemical Society (Washington, D.C.).
		Gupta, V. K. et al., "Optical Amplification of Ligand-Receptor Binding Using Liquid Crystals," <i>Science</i> , Vol. 279, pp. 2077-2080, 27 March 1998; published by the American Association for the Advancement of Science (Washington D.C.).
		Dancil, K. S. et al., "A Porous Silicon Optical Biosensor: Detection of Reversible Binding of IgG to a Protein A-Modified Surface," <i>J. Am. Chem. Soc.</i> , Vol. 121 pp. 7925-7930, 1999; published by the American Chemical Society (Washington D.C.).
		Naoka, M. et al., "Ferroelectric Liquid Crystal Alignment Films Utilizing Poly (DL amino acids) and Fibrous Proteins," <i>Kobunshi Ronbunshu</i> , Vol. 56, No. 6, pp. 396-400, June 1999. English-language abstract is at the end of the documents
		Kim, S-R. et al., "Orientations of Liquid Crystals on Mechanically Rubbed Films of Bovine Serum Albumin: A Possible Substrate for Biomolecular Assays Based on Liquid Crystals," <i>Anal. Chem.</i> , Vol. 72, No. 19, pp. 4646-4653, 1 October 2000; published by the American Chemical Society (Washington D.C.).
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>
*	<b>EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include any copy of this form with next communication to applicant.	